

REMARKS

Claims 1-17 are pending in the application.

Claims 1, 2, 4-6, 8-10, 12-15 and 17 remain rejected under 35 U.S.C. §103(a) as being unpatentable over Ho (US6870837) in view of Yamano et al. (US6445731). The rejection is respectfully traversed.

As is well-known in the art of modem relays, in order to maintain a modem connection that is, keep the modem connection alive, modem data must be continuously transmitted between the modems regardless of the amount of actual user data traffic being generated. This results in idle data being transmitted over an IP network which consumes IP network bandwidth.

Applicants' invention is directed to method and apparatus for reducing Internet bandwidth for a modem relay by not forwarding data packets that would have a payload of idle data over the IP packet network between Internet nodes while maintaining the connection between the modems. In particular, transmission of data to the other Internet node for transmission to the second modem is suspended upon detecting idle data received from the first modem and transmission is resumed upon receiving data from the first modem that is not idle data.

Independent claims 1, 5, 9 and 13 have been amended to recite the feature of suspending transmission upon detecting idle data and resuming transmission upon receiving data that is not idle data. Support for the amendments is found at least at page 8, line 28 to page 9, line 7 in the specification as originally filed.

The Ho reference is directed to data transfer over an IP network. Instead of storing the received idle data in the payload of the data packet, a circuit header in each IP packet includes an idle flag that is set in the packet to indicate idle data was received. Thus, the receiver receives a packet that includes an indication of the idle data instead of the actual idle data. [column 6, lines 58-65]

Transmission of an indication of idle data instead of the actual idle data as in the Ho system is nevertheless still data transmitted in a data packet over the IP network. Thus, the recited limitation of claim 1, as amended, with respect to suspending transmission of data upon detecting idle data is not met by the Ho reference.

The Yamano reference discloses aspects of a conventional modem in the background section [column 1, lines 33-55] that relate to generating idle information in the form of nulls or a marking tone when no packets are available to a framer that is responsible for composing a continuous bit stream from packets received from a packet queue. FIG. 3 relates to an embodiment of a receiver circuit that receives a continuous analog signal from a communication channel such as a telephone line. Upon detecting the presence of idle information in the analog signal, the receiver circuit enters a standby mode whereby the processing requirements of the receiver circuit are reduced by disabling and/or reducing the processing precision of selected elements within the receiver circuit. In column 13, lines 64-67 (cited by the Examiner), Yamano describes an alternative embodiment using a burst-mode protocol in which a transmitter circuit only sends information over a telephone line when there is meaningful packet data available to be sent. The receiver circuit for this embodiment (FIG. 4) monitors the telephone line for the presence or absence of the analog signal bursts.

The section of Yamano cited by the Examiner is in the context of transmission over a telephone line between a modem transmitter circuit and a modem receiver circuit. That is, the communication is between modems over a telephone line (e.g., switched telephone network) and not over an IP network. Neither of the receiver embodiments in Yamano disclose suspending and resuming data transmission over an IP network.

At page 3 of the instant Office Action, the Examiner indicates the view that Yamano teaches the recited limitation of claim 1 “upon detecting no data packets received from the other Internet node over an IP network to transmit to the first modem, regenerating idle data at the Internet node to transmit to the first modem, the regenerated idle data used to maintain a connection between the first modem and the second modem.” In particular, the Examiner refers to column 4, lines 6-9 regarding the receiver circuit of Yamano detecting the start of idle information. However, the receiver circuit in Yamano is directly connect to the transmitter circuit over a telephone line. This is not a teaching or suggestion that the modem receiver described in Yamano detects no data packets are received from another Internet node over an IP network.

The Examiner also refers to column 4, lines 9-18 regarding the receiver circuit of Yamano comparing expected idle symbols with soft symbols generated by the receiver circuit.

The receiver circuit remains in a standby (reduced processing) mode as long as the expected idle symbols and the soft symbols match. That is, the generation function is performed in relation to reducing signal processing requirements at the receiver circuit and the generated soft symbols are not transmitted, as is clear from FIG. 3. Since the generated soft symbols are used only internal to the receiver circuit and are not transmitted, Yamano's receiver circuit is neither "regenerating idle data at the Internet node to transmit to the first modem," nor regenerating idle data to maintain a connection between modems. Thus, the recited limitation of claim 1 as amended is not met by Yamano.

From the foregoing, it is clear that the combination of Ho and Yamano does not teach or suggest Applicants' claimed invention. The combination at best is a modem system with a packet network over which data packets are transmitted with an indication of idle data instead of the idle data.

The foregoing arguments apply to Claims 5, 9 and 13, as amended, which recite similar limitations. Claims 2, 4, 6, 8, 10, 12, 14-15 and 17 depend from respective base claims 1, 5, 9 and 13 and are allowable for the same reasons. Accordingly, the present invention of claims 1, 2, 4-6, 8-10, 12-15 and 17 is believed to be patentably non-obvious over the cited art. In view of the foregoing, removal of the rejection under 35 U.S.C. § 103(a) and acceptance of claims 1, 2, 4-6, 8-10, 12-15 and 17 are respectfully requested.

Claims 3, 7 and 11 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Ho in view of Yamano and further in view of Cidon et al. (US5343473). Claim 16 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Ho in view of Yamano and further in view of Byers (US5959996). Claims 3, 7, 11 and 16 depend from respective base claims 1, 5, 9 and 13. Claims 3, 7, 11 and 16 are patentable for the reasons noted above with respect to claim 1.

Reconsideration of the rejections under §103 is respectfully requested.

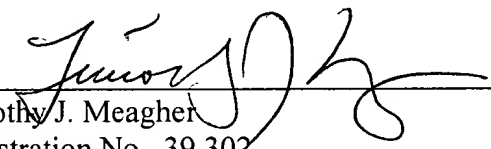
In view of the foregoing, removal of the rejections under 35 U.S.C. §103(a) and acceptance of Claims 1-17 are respectfully requested.

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

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